



Appendix 2 - Effect of anaesthesia on breastfeeding

ANZCA supports a culture of inclusion and diversity. This appendix applies to all patients who intend to provide breast milk for infants following anaesthesia/sedation, including procedures facilitating delivery, as well as those performed on patients who are already breastfeeding.

The purpose of this appendix is to support anaesthetists in providing contemporary pre-anaesthesia information and peri-operative care to patients intending to breastfeed following their procedure.

The term “breastfeeding” is used to refer to both breastfeeding and the use of expressed breast milk (EBM) to tube feed or bottle feed infants. Breastfeeding has significant health benefits for breastfeeding women and their infants and is recommended from birth for 6-12 months or longer, according to preference¹⁰. Previously, patients have been advised to delay breastfeeding after anaesthesia (“pump and dump”) for 24 hours, due to concerns regarding transfer of medication via breast milk. With further pharmacokinetic information and documented experience now available, this advice is no longer applicable.

Most medications used in anaesthesia are transferred in small amounts to breast milk. Concerns about infant effects relate to four elements.

1. Amount transferred: The Relative Infant Dose (RID)¹¹ measures the percentage of any medication per day that results in the breastfed infant when the medication is administered to the breastfeeding parent. Medications are considered “safe” if the RID is <10%. Most medications used in anaesthesia have a very low RID¹².

2. Oral bioavailability in the infant: of the medication or its metabolites once transferred via the breast milk.

3. Metabolism and clearance by the infant. Hepatic and renal medication metabolism and clearance systems are influenced by gestational age, postnatal age and body weight¹³.

4. Effects of medication/active metabolites on infants: Many medications used in anaesthesia may cause undesirable effects on infants, including sedation or respiratory depression, which can be exacerbated by large or repeated doses.

Recommendations for peri-operative care and pre-anaesthesia advice to patients intending to breastfeed:

- i. Desirable structures and systems that support continuation of breastfeeding peri-operatively include: physical spaces to express breast milk; facilities to safely store breast milk; access to experts in infant feeding; operating and recovery service policies that limit periods of separation of the breastfeeding parent and infant.
- ii. Practical points to consider include:
 - breastfeeding or expressing just prior to anaesthesia to prevent breast engorgement
 - if separation is anticipated to exceed the duration between feeds then breastmilk can be expressed and stored ahead of the procedure
 - an alternative carer for the infant should be arranged when opioid analgesia is anticipated¹⁴.
- iii. Relative benefits of different anaesthesia techniques should be discussed with patients, aiming to optimise early return of consciousness; control of pain, nausea and vomiting; and facilitate same-day discharge if planned.

- iv. Patients should be advised that most medication used in anaesthesia and analgesia will pass in small amounts to the breast milk but are not likely to cause adverse effects on the infant.
- v. Provision of analgesia facilitates breastfeeding; however, post-procedural opioid administration should be minimised and consideration given to instituting multi-modal analgesia techniques. If required, short courses of opioids are preferable to poor analgesia. Where repeated doses of opioid medication are administered, hospital staff and carers should be advised to monitor infants for signs of sedation. Sedation in the breastfeeding parent should prompt assessment of their infant¹³. Premature neonates may be at higher risk for apnoeas¹⁵. Infants of breastfeeding parents on long-term opioids as management of opioid-use disorder should be observed for neonatal abstinence syndrome¹⁶.
 - Advice on specific opioids: Tramadol and codeine are pro-drugs and considerable inter-individual variation in breastfeeding parent and infant metabolism can lead to unpredictable levels of active metabolite in the breastfeeding parent and thus in the breast milk. In 2017 The Society for Paediatric Anaesthesia in New Zealand and Australia (SPANZA) and the ANZCA Obstetric Special Interest Group published documents **in support of** continued careful and limited use of tramadol while breastfeeding:
 - [SPANZA Advisory on tramadol - Use of tramadol during breastfeeding and in the neonate \(2017\)](#)¹⁷
 - [Statement regarding the use of Tramadol in breastfeeding women \(2017\)](#)¹⁸
- vi. Table 1. Commonly-used anaesthesia medications and the current Therapeutic Guidelines (eTG) categorisation for use in breastfeeding¹⁹. For other medications refer to eTG (Australia)¹⁹, or the Drugs and Lactation Database (United States)²⁰.

	Medication	eTG Categorization	Other references
Sedatives	Benzodiazepines	Compatible	Short-acting (midazolam) preferred over long-acting (diazepam)
Induction agents	Propofol	Compatible	
	Thiopentone	Compatible	
Inhaled agents	Volatile agents	*	Little information. Short adult serum half-life ²¹ .
Muscle relaxants and reversal	Suxamethonium	*	No information. Rapid adult metabolism. Poor lipid solubility, very low transfer to breast milk ²² .
	Rocuronium	*	Rapidly metabolized in adult circulation, very low transfer to breast milk ²³ .
	Sugammadex	*	No information available. A large, highly polar molecule, low transfer to breast milk probable ²⁴ .
Opioids	Morphine	Compatible, caution with slow-release preparations	
	Oxycodone	Use with caution	
	Codeine	Avoid	

	Medication	eTG Categorization	Other references
	Tramadol	Compatible for short-term use	Product information recommends against use during breastfeeding ²⁵ . SPANZA supports the use of tramadol while breastfeeding ¹⁷ .
	Fentanyl	Avoid transcutaneous patch	
Co-analgesics	Paracetamol	Compatible	
	Ibuprofen	Compatible	
	Diclofenac	Compatible	
Local anaesthetics	Lignocaine	Compatible	
	Bupivacaine	Compatible	
Antiemetics	Metoclopramide	Compatible	
	Ondansetron	Compatible	
	Dexamethasone	Use with caution due to lack of data	Data on other steroids reassuring

* No Therapeutic Guideline recommendation provided.

Drugs with emerging pharmacokinetic information:

Dexmedetomidine: this drug does not have a Therapeutic Guidelines breastfeeding recommendation. A pharmacokinetic study published in 2017 suggested a RID of 0.034%²⁶. Further information is required²⁷.

Tapentadol: the Therapeutic Guidelines recommendation is to avoid tapentadol use during breastfeeding due to lack of data. Unlike tramadol and codeine, tapentadol is not converted to active metabolites. Further information is required²⁸.

Related ANZCA documents

PS02(A) Position statement on credentialling and defining the scope of clinical practice in anaesthesia

PG03(A) Guideline for the management of major regional analgesia

PG06(A) Guideline on the anaesthesia record

PG09(G) Guideline on sedation and/or analgesia for diagnostic and interventional medical, dental or surgical procedures

PG12(POM) Guideline on smoking as related to the perioperative period

PG15(POM) Guideline for the perioperative care of patients selected for day stay procedures

PS26(A) Position statement on informed consent for anaesthesia or sedation

PG28(A) Guideline on infection control in anaesthesia

PG29(A) Guideline for the provision of anaesthesia care to children

PG41(PM) Guideline on acute pain management

PS45(PM) Position statement on patients' rights to pain management and associated responsibilities

PG51(A) Guideline for safe management and use of medications in anaesthesia

PS57(A) Position statement on duties of specialist anaesthetists

PS59(A) Position statement on roles in anaesthesia and perioperative care

PG60(POM) Guideline on the perioperative management of patients with suspected or prove hypersensitivity to chlorhexidine.

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Further reading

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